I. AMENDMENT

A. In the Claims

Amend the claims as follows:

1. (original) A method for slowing and controlling a beam of charged particles, the method including the steps of:

superimposing at least one magnetic field on a mass; and

passing a beam of the charged particles through the mass and at least one magnetic field such that the fields control the beam and the mass slows but does not stop the particles.

2. (original) The method of claim 1, wherein the step of superimposing includes superimposing a bending magnetic field within the mass.

3. (original) The method of claim 1, wherein the step of superimposing includes superimposing a focusing magnetic field within the mass.

4. (original) The method of claim 1, wherein the step of superimposing includes superimposing a bending magnetic field on a focusing magnetic field within the mass.

5. (original) The method of claim 4, wherein the step of passing is carried out with the mass including a gas.

6. (original) The method of claim 4, wherein the step of passing is carried out with the mass including a liquid.

7. (original) The method of claim 4, wherein the step of passing is carried out with the mass including a solid.

8. (original) The method of claim 4, wherein the step of superimposing is carried out with one of the magnetic fields at a non-zero angle to the beam.

9. (original) The method of claim 4, wherein the step of superimposing is carried out with the focusing magnetic field being a circular magnetic field inside the mass.

10. (original) The method of claim 4, wherein the step of superimposing is carried out with the focusing magnetic field being a non-circular magnetic field inside the mass.

11. (original) The method of claim 4, wherein the step of superimposing is carried out with the bending magnetic field being uniform inside the mass.

12. (original) The method of claim 4, wherein the step of superimposing is carried out with the bending magnetic field being non-uniform inside the mass.

13. (original) The method of claim 4, further including the step of flowing an electrical current along a length of the mass to produce the focusing magnetic field.

14. (original) The method of claim 4, further including the step of flowing electrical current in at least one coil adjacent to the mass, the coil located around a material

sufficiently magnetic to interact with the current in the coil to influence the bending magnetic field.

15. (original) The method of claim 4, wherein the step of passing the beam of the charged particles through the mass is carried out with the mass comprised of a material conducting an electric current and includes magnetically influencing the beam with the electric current.

16. (original) The method of claim 4, further including the steps of:

directing the beam into a transfer line; and

aiming the beam at a patient to terminate cells.

17. (original) The method of claim 4, further including the steps of:

directing the beam into a transfer line;

injecting the beam into a synchrotron; and

further decelerating the beam.

18. (original) The method of claim 4, further including the steps of:

directing the beam into a transfer line;

injecting the beam into a cyclotron; and

further decelerating the beam.

19. (original) The method of claim 4, further including the steps of:

directing the beam into a transfer line;

injecting the beam into a linear accelerator; and

further decelerating the beam.

20. (original) The method of claim 4, further including the steps of:

directing the beam into a transfer line;

injecting the beam into a synchrotron;

reducing the beam emittance longitudinally and/or transversely with stochastic and/or electron cooling; and

further decelerating the beam.

21. (original) The method of claim 4, further including the steps of:

directing the beam into a transfer line;

injecting the beam into a synchrotron;

reducing the beam emittance in at least one direction from the group consisting of longitudinally, transversely, and both, with cooling from the group consisting of stochastic, electron, and both; and

further decelerating the beam.

22. (original) The method of claim 4, further including the steps of:

capturing the particles in a container at a first location;

transporting the container to a second location; and

releasing the particles at the second location.

23. (original) An apparatus for slowing and controlling a beam of charged particles, the apparatus including:

means for superimposing a magnetic field within a mass, and a second means for superimposing a second magnetic ~~filed~~ field within the mass, said means cooperating to control the beam of particles within the mass; and

means for passing a beam of charged particles through the mass to slow the charged particles.

24. (original) An apparatus for slowing and controlling a beam of charged particles, the apparatus including:

a bending magnetic field superimposed on a focusing magnetic field within a mass.

25. (original) The apparatus of claim 24, wherein the mass includes a gas.

26. (original) The apparatus of claim 24, wherein the mass includes a liquid.

27. (original) The apparatus of claim 24, wherein the mass includes a solid.

28. (original) The apparatus of claim 24, further including:

at least one coil adjacent to the mass, the coil located around a flux return sufficiently magnetic to influence the bending magnetic field.

29. (original) The apparatus of claim 28, wherein the mass is comprised of :

a material conducting an electric current to magnetically influence the beam.

30. (original) The apparatus of claim 28, further including:

a supply of electrical power;

electrical connectors on each end of the material; and

interconnections between the power supply and the electrical connectors to communicate the electrical power through the material.

31. (original) The apparatus of claim 30, wherein the mass is comprised of :

a second material conducting an electric current to magnetically influence the beam; and further including

electrical connectors on each end of each material to communicate electrical power through the respective materials.

32. (currently amended) A method for controlling a beam of particles, the method including the steps of:

slowing the particles with a mass by a rate of more than 0.1 million electron-volts per centimeter;

focusing the beam of particles with a focusing magnetic field of at least one Tesla per meter squared over at least a three inch diameter with a focusing field generated by electrical power of less than 100 Watts per meter of beam travel through the mass ~~material~~; and

bending the particle beam with a bending magnetic field of at least one Tesla over at least a three inch diameter with a bending field generated by electrical power of less than 50 Watts per meter of beam travel through the mass ~~material~~.

33. (original) The method of claim 32, wherein the step of slowing is carried out at a rate of more than one million electron-volts per centimeter.

34. (original) The method of claim 32, wherein the step of slowing is carried out at a rate of more than 10 million electron-volts per centimeter.

35. (original) The method of claim 32, wherein the step of slowing is carried out at a rate of more than 100 million electron-volts per centimeter.

36. (original) The method of claim 32, wherein the step of slowing is carried out with less than one Watt of power.

37. (original) The method of claim 32, wherein the step of focusing is carried out with a focusing magnetic field of at least one Tesla per meter squared over at least a three inch diameter with a power of less than 1000 Watts per meter of beam travel through the material.

38. (original) The method of claim 32, wherein the step of bending is carried out with a bending magnetic field of at least one Tesla over at least a three inch diameter with a power of less than 500 Watts per meter of beam travel through the material.

39. (currently amended) The method of claim 1, wherein the step of passing the beam is carried out with the particles including antiprotons.

40. (new) The method of claim 2, wherein the step of passing the beam is carried out with the particles including antiprotons.

41. (new) The method of claim 3, wherein the step of passing the beam is carried out with the particles including antiprotons.

42. (new) The method of claim 4, wherein the step of passing the beam is carried out with the particles including antiprotons.

43. (new) The method of claim 5, wherein the step of passing the beam is carried out with the particles including antiprotons.

44. (new) The method of claim 6, wherein the step of passing the beam is carried out with the particles including antiprotons.

45. (new) The method of claim 7, wherein the step of passing the beam is carried out with the particles including antiprotons.

46. (new) The method of claim 8, wherein the step of passing the beam is carried out with the particles including antiprotons.

47. (new) The method of claim 9, wherein the step of passing the beam is carried out with the particles including antiprotons.

48. (new) The method of claim 10, wherein the step of passing the beam is carried out with the particles including antiprotons.

49. (new) The method of claim 11, wherein the step of passing the beam is carried out with the particles including antiprotons.

50. (new) The method of claim 12, wherein the step of passing the beam is carried out with the particles including antiprotons.

51. (new) The method of claim 13, wherein the step of passing the beam is carried out with the particles including antiprotons.

52. (new) The method of claim 14, wherein the step of passing the beam is carried out with the particles including antiprotons.

53. (new) The method of claim 15, wherein the step of passing the beam is carried out with the particles including antiprotons.

54. (new) The method of claim 16, wherein the step of passing the beam is carried out with the particles including antiprotons.

55. (new) The method of claim 17, wherein the step of passing the beam is carried out with the particles including antiprotons.

56. (new) The method of claim 18, wherein the step of passing the beam is carried out with the particles including antiprotons.

57. (new) The method of claim 19, wherein the step of passing the beam is carried out with the particles including antiprotons.

58. (new) The method of claim 20, wherein the step of passing the beam is carried out with the particles including antiprotons.

59. (new) The method of claim 21, wherein the step of passing the beam is carried out with the particles including antiprotons.

60. (new) The method of claim 22, wherein the step of passing the beam is carried out with the particles including antiprotons.

61. (new) The method of claim 32, wherein the step of focusing the beam is carried out with the particles including antiprotons.

62. (new) The method of claim 33, wherein the step of focusing the beam is carried out with the particles including antiprotons.

63. (new) The method of claim 34, wherein the step of focusing the beam is carried out with the particles including antiprotons.

64. (new) The method of claim 35, wherein the step of focusing the beam is carried out with the particles including antiprotons.

65. (new) The method of claim 36, wherein the step of focusing the beam is carried out with the particles including antiprotons.

66. (new) The method of claim 37, wherein the step of focusing the beam is carried out with the particles including antiprotons.

67. (new) The method of claim 38, wherein the step of focusing the beam is carried out with the particles including antiprotons.